

NOAA Ship RUDE



The ship is named for Captain Gilbert T. Rude (pronounced Rudy), an officer in the former Coast and Geodetic Survey from 1903 to 1945. Captain Rude developed the Rude Star Finder, a navigational device widely used for locating celestial bodies.

NOAA Ship *Rude*, homeported in Norfolk, Virginia, is the smallest hydrographic survey ship in NOAA's fleet. The ship's primary mission is to conduct near-shore hydrographic surveys in the ports and along the Atlantic coast of the United States, in support of NOAA's nautical charting mission. The surveys are used to update the Nation's suite of nautical charts, critical for the safe navigation of maritime traffic.

With the demands of commerce requiring larger, more cost-effective vessels with deeper drafts to call on U.S. ports, *Rude's* mission is increasingly important in order to ensure the safe passage of these vessels and prevent maritime disasters, which can have a devastating effect on the Nation's coastal resources. In addition to safe navigation, charts provide important information for a variety of users: coastal managers, fishermen, marine archeologists, recreational divers, and more depend on the valid information depicted on nautical charts.

From its commissioning in 1967 through the mid-1980's, *Rude* conducted wire-drag surveys to determine the location and least depth of submerged wrecks and obstructions, along with its sister ship *Heck*. The development of side-scan sonar (SSS) technology in the 1980's provided an attractive alternative to wire drag surveys; and in 1985, *Rude* began operations as a SSS survey vessel. Housed in a small torpedo-shaped shell called a "fish," the SSS provides a wide picture of the bottom to locate submerged

objects and to approximate their height off the seafloor. During typical operations, the side-scan sonar images a swath of seafloor 200 m wide, allowing *Rude* to quickly search for underwater obstructions. In 2002, *Rude* upgraded to a high-speed, high-resolution SSS which allows the ship to tow at up to 8 knots and still obtain full bottom coverage.

Rude is also equipped with some of the most technically advanced navigation and hydrographic systems available. A two-receiver Differential Global Positioning System (DGPS) combined with an inertial motion unit can position the ship within 1m and calculate the ship's heading to better than 0.1 degree accuracy. A shallow-water multibeam sonar produces a fan-shaped array of sound that is processed into 240 individual depth measurements up to 40 times a second. Under the right conditions, *Rude* can acquire over a half million depth soundings in one minute. Once integrated, these systems allow *Rude* to obtain precise depth and position data on obstructions found with the SSS. Ship SCUBA divers may also be used to further investigate the extent and nature of the hazards. To assist in its survey operations, the ship carries a 19-foot Boston Whaler and trailers a 23-foot SeaArk. Findings from these surveys are incorporated in new chart editions approximately six months after the completion of survey work.

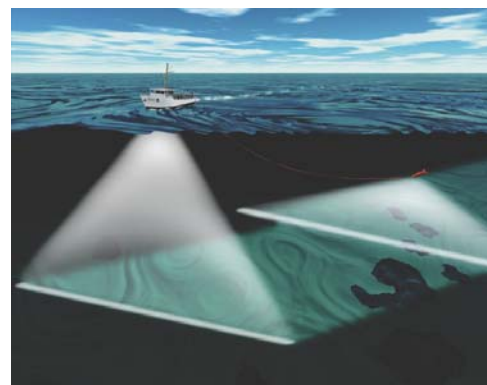
Due to *Rude's* expertise at finding submerged objects, it is often called upon to assist the U.S. Coast Guard and Navy in search, rescue, and recovery operations. *Rude* located the wreckage from TWA Flight 800 and John F. Kennedy Jr.'s aircraft.



Downed aircraft located nose-in on the bottom of Long Island Sound



Side-scan sonar "fish"



Multibeam and side-scan sonar in operation

Ship Specifications

Length (LOA): 27.4 m (90 ft.)
Breadth: 6.7 m (22 ft.)
Draft: 2.2 m (7.2 ft.)
Displacement: 220 tons
Gross Tonnage: 150 tons
Hull: Welded Steel
Cruising Speed: 10 knots
Range: 1,000 nm
Endurance: 5 days
Hull Number: S 590
Call Letters: WTET
Commissioned Officers: 4
Licensed Engineers: 1
Crew: 6
Designer: Maritime
Administration
Builder: Jacobson Shipyard
Oyster Bay, New York
Launched: August 1966
Delivered: December 1966
Commissioned: March 1967

NOAA Marine and Aviation Operations

Since NOAA's beginning, NOAA ships and aircraft have played a critical role in the collection of its oceanographic, atmospheric, hydrographic, fisheries and coastal data. This fleet of platforms is managed and operated by NOAA Marine and Aviation Operations (NMAO), an office made up of civilians and officers of the NOAA Commissioned Corps, the Nation's seventh service. In addition to research and monitoring activities critical to NOAA's mission, NOAA ships and aircraft provide immediate response capabilities for unpredictable events. Most recently, NOAA aircraft provided support to the World Trade Center and Pentagon recovery and clean-up efforts by mapping the wreckage using remote-sensing technology. NOAA survey ships found the wreckage of EgyptAir Flight 990, TWA Flight 800 and John F. Kennedy Jr.'s aircraft. Our ships, aircraft and personnel have also conducted damage assessments after hurricanes and major oil spills such as the *Exxon Valdez*, Persian Gulf War and *New Carissa*.

NOAA's fleet of research and survey ships is the largest fleet of federal research ships in the Nation. The fleet ranges from large oceanographic research vessels capable of exploring the world's deepest ocean, to smaller ships responsible for charting the shallow bays and inlets of the United States. The fleet supports a wide range of marine activities, including fisheries research, nautical charting and mapping, and ocean and climate studies. Many of NOAA's research vessels are unique in their ability to conduct scientific research.

NOAA's fleet of fixed-wing aircraft and helicopters operate throughout the world, providing a wide range of capabilities, including hurricane prediction research, marine mammal and fisheries assessment, and coastal mapping. NOAA aircraft are modified to carry scientists and specialized instrument packages to conduct research for NOAA's missions.

NOAA Commissioned Officer Corps

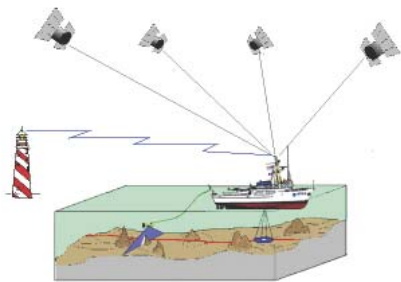
The NOAA Corps is one of the seven uniformed services of the United States, composed of commissioned officers who provide NOAA with an important blend of operational, management, and technical skills that support the agency's science and surveying programs at sea, in the air, and ashore. NOAA Corps officers, in addition to managing and operating ships and aircraft, are also scientists and engineers. Corps officers serve in NOAA's research laboratories and program offices throughout the Nation and in remote locations around the world; for example, an officer serves as station chief at the South Pole, Antarctica.

About NOAA

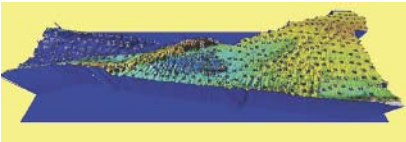
NOAA conducts research and gathers data about the global oceans, atmosphere, space, and sun, and applies this knowledge to science and service that touch the lives of all Americans.

NOAA warns of dangerous weather, charts our seas and skies, guides our use and protection of ocean and coastal resources, and conducts research to improve our understanding and stewardship of the environment which sustains us all.

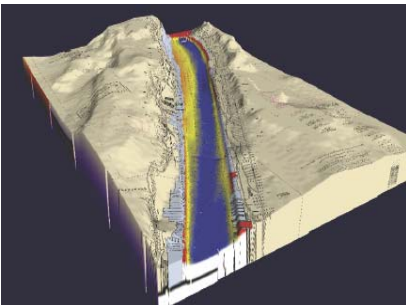
A Commerce Department agency, NOAA provides these services through five major divisions: the National Weather Service, the National Ocean Service, the National Marine Fisheries Service, the National Environmental Satellite, Data and Information Service, and Office of Oceanic and Atmospheric Research; and numerous special program offices. More information about NOAA can be found at <http://www.noaa.gov>



Precise side-scan and multibeam sonar locations are determined using DGPS technology



Computer model of bottom from multibeam data



Digital terrain model of Hudson River

Visit the ship's web site at www.moc.noaa.gov/ru/
For more information, contact NMAO at 301-713-1045
or visit our web site at www.nmao.noaa.gov

